Effect of chloride and sulfate ions on reinforcement corrosion

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Abstract: The effect of chloride, sulfate and chloride-sulfate solutions on corrosion of steel embedded in cement paste has been investigated. The reinforcement corrosion was evaluated by measuring corrosion potentials and corrosion current density using D.C. linear polarization resistance technique. Results indicate that the corrosion activity was very minimal in specimens immersed in pure sulfate solution. The reinforcement corrosion activity was found to be higher in specimens immersed in chloride-sulfate solutions as compared to those immersed in pure chloride solution. The corrosion rate was observed to be doubled when the sulfate concentration in 15.7% Cl- solution was raised from 0.55 to 2.1%.